

ABSTRACT OF THE INVENTION

A method of forming high performance logic transistors and high density flash transistors on a single substrate is disclosed. In one embodiment, the method comprises: forming a logic gate stack in a logic region on a substrate, forming a flash memory gate stack in a flash region on the substrate, depositing a hardmask layer over the logic gate stack and over the flash memory gate stack, patterning the hardmask in the logic region so that areas of hardmask remain where logic gates are desired, patterning the flash gate stack in the flash region to form flash memory gates, and etching the logic gate stack using the remaining hardmask as a mask to form logic gates.